

WHAT IS CLAIMED IS:

1. A growth-selective structure of light-emitting diode (LED), comprising:
 - a nonconductive substrate;
 - an oxidation layer comprising a patterned silicon dioxide deposited on the substrate to form a plurality of isolated blocks having a large width greater than 30 μm and a small width smaller than 5 μm respectively, the blocks being separated by a gap of 8-12 μm ;
 - a buffer layer of GaN (gallium nitride) III-V group deposited on the oxidation layer of the isolated blocks having the smaller width to form a unified body;
 - an n-GaN layer formed on the buffer layer;
 - an active layer of GaN III-V group formed on the n-GaN layer;
 - a p-GaN layer formed on the active layer;
 - an n-ohmic-contact electrode formed in an n-electrode forming section on the n-GaN layer, the n-electrode forming section being formed by etching the p-GaN layer, the active layer, and the n-GaN layer to have the n-GaN layer exposed, then, a Ti/Al metal being deposited on the n-GaN layer for forming the n-ohmic-contact electrode;
 - a p-ohmic-contact electrode made of Ni/AuBe formed on the p-GaN layer, having a thickness of 50-200 \AA ; and
 - a plurality of soldering pads formed on the p- and n-ohmic-contact electrode, the soldering pad being substantially a stack layer in 3-1 μm thick, formed by overlapping 5 metallic layers (Ti/Pt/Al/Ti/Au) together.
2. The growth-selective structure of LED according to Claim 1, wherein a lateral-growth technology applied is based on adjustment of the mixing ratio among hydrogen (H_2), ammonia (NH_3), and trimethyl gallium (TMG).
3. The growth-selective structure of LED according to Claim 1, wherein the thickness of the soldering pad is 2 μm .
4. The growth-selective structure of LED according to Claim 1, wherein the thickness of the p-ohmic-contact electrode is 100 \AA .

5. The growth-selective structure of LED according to Claim 1, wherein the gap is 10 μm .
6. The growth-selective structure of LED according to Claim 1, wherein the material of the n-GaN layer is a silicon-doped GaN compound of III-V group.
7. The growth-selective structure of LED according to Claim 1, wherein the material of the p-GaN layer is a magnesium-doped GaN compound of III-V group.